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Examination of Communication and Social Media Usage among Socially Anxious Individuals

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EXAMINATION OF COMMUNICATION AND SOCIAL MEDIA USAGE AMONG SOCIALLY ANXIOUS INDIVIDUALS

by
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Abstract

Social anxiety disorder (SAD) affects between 6.8% and 12.1% of the U.S. population. At the core of SAD is the fear of social situations, and in particular, the fear of others' positive (FPE) and negative (FNE) evaluation. Studies have found that social media and online/indirect communication are commonly used to minimize the experience of stress, anxiety, evaluation, and rejection commonly associated with face-to-face interactions. As such, the aims of the current study were 1) to characterize communication and social media use among socially anxious college students, and 2) to examine associations between social media use and FNE and FPE. The results provide an interesting set of descriptive data, suggesting a high prevalence of FNE, FPE, and social media use. Contrary to predictions, no significant correlations between the variables were observed. The results indicate the relevance of social media and alternative forms of communication among socially anxious individuals. Future research should further investigate the function of social medial and communication patterns among socially anxious individuals.

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Introduction

Social anxiety disorder (SAD), formerly known as social phobia, is one of the most frequently observed anxiety disorders. The Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition; American Psychiatric Association [APA], 2013) characterizes this disorder by avoidance and distress associated with potential social or performance situations where there exists possible evaluation and scrutinization by others. Roughly 6.7% of the U.S. population are affected by SAD in their lifetime (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012), and in addition to being among the most diagnosed mental disorders within the United States, the 12-month prevalence rate is 10.1% (Bandelow, 2015) and the average cost per patient is roughly $3300 each year (Konnopka, Leichsenring, Leibing, & Köning, 2009). Previous research has shown that individuals with SAD are notably less likely to seek social jobs (e.g., restaurant servers, educators; Himle et al., 2014) and are more than two times likely to be unemployed than those without SAD (Moitra, Beard, Weisberg, & Keller, 2011).

In addition to long-term consequences of SAD, daily living presents numerous challenges. Those suffering from SAD often perceive themselves as of diminished value compared to others (Alkris, Kadirhan, & Sat, 2017) and often live in constant fear of rejection or negative evaluation (Bögels et al., 2010). Although these individuals often attempt to positively present themselves (Schlenker & Leary, 1982), they typically exhibit low self-confidence and perceived worth (Clark, 2005; Wells et al., 1995). Individuals with SAD experience difficulties when it comes to establishing (Davidson, Hughes, George, & Blazer, 1994) and maintaining romantic relationships (Filsinger & Wilson, 1983; Porter & Chambless, 2014), which is due in part to over-evaluation of

criticism (Porter, Chambless, Keefe, Allred, & Brier, 2018) and difficulty expressing emotions (Porter & Chambless, 2014; Sparrevohn & Rapee, 2009). Additionally, SAD has a substantial impact on individuals' functioning in the workforce (Bruch, Fallon, & Heimberg, 2003; Stein & Kean, 2000).

At the core of SAD is the fear of social situations, and in particular, the fear of others' judgments, regardless of valence. That is, individuals have been found to fear both negative and positive evaluation from others (Leary, Kowalski, & Campbell, 1988). Fear of negative evaluation (FNE) is characterized as the apprehension and fear of an individual regarding the perceived threat of unfavorable judgment (Carter, Sbrocco, Riley, & Mitchell, 2012; Dryman, Gardner, Weeks, & Heimberg, 2016; Shafique, Gul, & Raseed, 2017). FNE has been hypothesized to be a contributing factor to the fear and avoidance characteristics among individuals afflicted with SAD (Lipton, Weeks, & De Los Reyes, 2016). Individuals with FNE tend to marginalize themselves based on self-perceived imperfections of an array of personal attributes including physical appearance, mental capacity, behavior, and failure to meet certain expectations (Lipton et al., 2016; Teale Sapach, Carleton, Mulvogue, Weeks, & Heimberg, 2015; Wells et al., 1995; Wong & Moulds, 2014). This fear often causes individuals to scan their environment for potential negative evaluation whenever there is an opportunity for social interaction and overestimate any likely neutral threats, which can lead to greater anxiety and degraded social performance (Carter et al., 2012; Dryman et al., 2016; Rapee & Heimberg, 1997; Reichenberger, Wiggert, Wilhelm, Weeks, & Blechert, 2015). For instance, an individual with FNE eating in a crowded cafeteria may continually look around to see if anyone is looking in their direction and interpret any potentially inadvertent attention as negative

feedback. The behavioral characteristics associated with FNE can also inhibit social interactions with individuals closing themselves off to others by avoiding eye contact, averting their gazes, and tensing their muscles among other reserved physical aspects (Clevinger, Kleider-Offutt, & Tone, 2018; Dryman et al., 2016; Terburg, Aarts, & van Honk, 2012; Walters & Inderbitzen, 1998; Zimmerman, Morrison, & Heimberg, 2015).

An extensive amount of research has identified that the FNE is a leading factor and a fundamental component to the development of social anxiety and ultimately SAD (Carter et al., 2012; Rapee & Heimberg, 1997; Teale Sapach et al., 2015; Turk, Heimberg, & Hope, 2001; Weeks et al., 2005; Weeks & Zoccola, 2015; Wells et al., 1995; Wolniewicz, Tiamiyu, Weeks, & Elhai, 2018). In a study comparing socially anxious and non-anxious undergraduate students (Leary, Kowalski, and Campbell, 1988), socially anxious participants reported much stronger fears of being negatively evaluated. Additional research has also shown that socially anxious individuals are more apt to interpret forms of social interactions in an overly negative manner compared to non-anxious individuals (Bautista & Hope, 2015; Beard & Amir, 2009; Carter et al., 2012; Hirsch & Clark, 2004). Although FNE has been extensively studied, recent work also points to the fear of positive evaluation (FPE) contributing to social anxiety particularly in situations where an individual's performance is likely to be repeated and once again faced with evaluative feedback (Carter et al., 2012).

In contrast to FNE, FPE is the fear of performing well and receiving positive social feedback that often leads to feelings similar to FNE including discomfort, distress, and increased anxiety (Dryman et al., 2016; Weeks, Heimberg, & Rodebaugh, 2008; Weeks & Zoccola, 2015). Previous research has theorized that for individuals with FPE,

there is almost constant worry about behaving in a manner that generates praise from others particularly because such praise brings unwanted attention to that individual which could lead to social rejection from jealous peers or could warrant more positive behavior in the future, thus increasing the threat of disappointment substantially (Carter et al., 2012; Lipton et al., 2016; Reichenberger et al., 2015; Weeks, Heimberg, Rodebaugh, Goldin, & Gross, 2012; Wolniewicz et al., 2018). Evidence has been found of FPE among socially anxious individuals in multiple studies. Alden, Mellings, and Laposa (2004) engaged a group of individuals meeting DSM-IV criteria for Generalized Social Phobia (APA, 2000) in interactive role play where each participant received positive or negative feedback. Participants receiving positive feedback were found to have increased anxiety in the remainder of the experiment. Carter and colleagues (2012) had undergraduate students perform a brief, videotaped speech before receiving positive, negative, or no feedback from what the participants believed to be a panel of judges watching their recorded performance. Participants received feedback, were asked to perform their speech again, this time in front of the judges, and immediately answered surveys about their performance and current anxiety (Carter et al., 2012). This study found that despite all participants asked to repeat their speech experiencing greater anxiety regardless of their feedback (positive, negative, or none), the elevated anxiety was likely related to the fear of not performing as well during the second speech and suggests a concern to maintain an overall positive impression (Carter et al., 2012).

Alongside advances in technology, communication and social interaction have evolved, as have the fears associated with SAD (Erwin, Turk, Heimberg, Fresco, & Hantula, 2004; Pierce, 2009). In particular, social media refers to internet websites,

online programs, and device applications that allow interaction among its users such as networking websites (e.g., Facebook, Twitter, LinkedIn), visual media websites (e.g., Instagram, Snapchat, YouTube), video games and virtual game worlds (e.g., World of Warcraft, EverQuest, Fortnite), blogs, and chat rooms (Boyd & Ellison, 2007; Kaplan & Haenlein, 2010; O'Keeffe & Clarke-Pearson, 2011). These platforms allow their users to connect with close friends and family members as well as complete strangers and have grown to serve as a cornerstone for human social development and maintenance (Ellison, Steinfeld, & Lampe, 2007; Vannucci, Flannery, & Ohannessian, 2017). Social media is prevalent across all generations, but especially among young adults. An estimated 88% to 98% of 18- to 29-year-olds report use of at least one form of social media (Smith & Anderson, 2018; Villanti et al., 2017). Nearly three-fourths of social media users admit to interacting through more than one platform (Smith & Anderson, 2018) and recent studies have concluded that the average user has between five and eight active social media accounts (Mander, 2015; Villanti et al., 2017).

An influx of research findings supports the association between greater dispositional social anxiety symptoms and increased use of social media platforms among adolescents (Schouten, Valkenburg, & Peter, 2007; Valkenburg & Peter, 2009), emerging adults (ages 18 to 22; Liu & Ma, 2018; Vannucci et al., 2017; Vannucci, Ohannessian, & Gagnon, 2018), and adults (McCord, Rodebaugh, & Levinson, 2014). For instance, engaging in more than one social media interface was positively correlated with greater levels of anxiety, stress, cognitive fatigue, and depressive symptoms among 18 to 29 year olds (Becker, Alzahabi, & Hopwood, 2013; Lup, Trub, & Rosenthal, 2015; Vannucci et al., 2018).

At the same time, a number of studies have shown that many individuals with social anxiety prefer communicating via social media to minimize the experience of stress, anxiety, and rejection associated with face-to-face interactions (Caplan, 2006; Valkenburg & Peter, 2009). For example, Erwin and colleagues (2004) examined individuals with SAD through self-report online surveys and found that social interaction anxiety was positively correlated with endorsements of internet comfort and favorability of online communication over face-to-face interactions. Compared to face-to-face interactions, socially anxious individuals view themselves as substantially more confident in their actions and interactions on social media and express greater control over the online conversations (Green, Wilhelmsen, Wilmots, Dodd, & Quinn, 2016; Seabrook, Kern, & Rickard, 2016; Valkenburg & Peter, 2009).

Several patterns of social media behaviors have been observed among individuals with SAD that are consistent with existing theoretical models of SAD. In brief, cognitive behavioral models posit that individuals with SAD engage in safety behaviors that may momentarily reduce anxiety but ultimately contribute to the maintenance of future anxiety symptoms (Piccirillo, Dryman, & Heimberg, 2016). Several studies have shown that maladaptive behaviors of passively examining posts and ruminating over self-evaluative characteristics (Shaw, Timpano, Tran, & Joormann, 2015; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) and excessively seeking validation from peers through reassuring social media measures including likes, comments, and reports can serve as sources of stress and elevated social anxiety symptoms as well as weaken overall motivation to interact face-to-face. This behavior of worrying about online interactions resembles the typical negative self-processing that individuals with SAD experience

during in-person interactions (Clark, 2005). Additionally, safety behaviors intended to prevent or minimize feared outcomes, which are characteristic of SAD, may similarly manifest during online interactions (Clark, 2005). For instance, one study found that individuals continuously monitor likes, reposts, and other similar qualities to attempt to gauge how they have been perceived (Erwin et al., 2004).

Social media is an increasingly common form of communication, which uniquely affects individuals with SAD. While social media is a vital component of communication, it represents just one of many forms available for individuals to use in order to communicate with family, friends, and their social network. Different technological advances now allow the ability to communicate without physically meeting in-person via traditional phone calls, text messaging, video calls (i.e., FaceTime, Skype), E-mail, and messaging systems through different forms of social media (i.e., Facebook Messenger). Recent research has shown that each of these forms of communication differ in both the intimacy levels associated with their use as well as the immediacy of providing a response (Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013; Wardecker, Chopik, Boyer, & Edelstein, 2016). Wardecker et al., (2016) examined the varying levels of intimacy among popular forms of communication and found that face-to-face interactions were the most intimate followed by phone conversations, text messaging, and then email messages. Research also indicates that more avoidant and anxious individuals are likely to limit their communication to less intimate forums (e.g., email) or to more publicly used forums that have lower levels of expected interaction and intimacy (e.g., social media platforms; Jin & Pena, 2010; Morey et al., 2013; Wardecker et al., 2016).

Given that most young adults use at least one social media platform each day (Smith & Anderson, 2018), it is a necessity to thoroughly understand how individuals with SAD navigate through the increasingly complex world of social media. Although neither FNE nor FPE have been found to be directly associated with social media use, Wolniewicz et al., (2018) discovered bivariate findings among college students that supported a significant association between FNE and problematic smartphone use which was defined as excessive smartphone use for purposes of communication and social networking. Additional research supports potential connections between FNE, FPE, SAD, and social media use. For example, online communication via different platforms of social media has been described as a safety behavior for individuals with SAD to reduce potential threats while interacting socially (Erwin et al., 2004; Lee & Stapinski, 2012; Shepherd & Edelmann, 2005).

The purpose of this study is to investigate social media use, communication, FNE, and FPE among a sample of college students with heightened social anxiety symptoms given the small number of studies in this area. The first aim of the study was to examine patterns of social media use among socially anxious individuals. It was predicted that individuals with higher levels of social anxiety would generally spend more time interacting on social media platforms. The second aim was to examine the influence of FNE and FPE on social media use. It was hypothesized that FNE and FPE would be significantly associated with engagement in greater social media platforms, as well as greater overall time on social media each day. In particular, it was predicted that FNE would be a stronger predictor of social media patterns relative to FPE.

The final aim was to examine patterns of communication among socially anxious individuals and their family, friends, and social network as a whole. We predicted that individuals would report low rates of intimate communication (e.g., in person) and high rates of less intimate forms of communication (e.g., social media, email).

Method

Participants and Procedure

The University of Mississippi's Department of Psychology Sona Systems research pool was used to recruit undergraduate students enrolled in psychology courses. Students completed the mass screening questionnaire, and participants scoring a 19 or higher (identified clinical cutoff) on the Social Phobia Inventory were invited via email to participate in a study entitled "Emotions and Behaviors in Social Situations". In the current study, participants were included who were between 18 to 25 years old. Any self-reported measures that were incomplete were excluded from subsequent data analysis. The final sample was comprised of 133 participants (78.9% female). Participants were majority freshman undergraduate students living in on-campus residence halls (75.2%). The mean age was 18.83 years (SD = 0.95), and the sample was predominantly White (77.4%; 9.0% African American; 6.0% Hispanic; 4.5% Asian; 3.0% Multiracial) and heterosexual (87.2%; 5.3% bisexual).

This study was a part of a larger, ongoing study which was approved by the University of Mississippi's Institutional Review Board. Data collection for the current study began November 11, 2017 and was completed on November 29, 2018. After reviewing and consenting to study procedures, participants completed an online battery of self-report measures via Qualtrics, an online data collection tool. Participants were then

given a structured clinical interview to assess social anxiety disorder severity. Following this, participants completed several laboratory tasks that were not a part of the current study and accordingly, are not described here. Upon completion of the study, participants received 1.5 course credit via the University Sona Systems pool for their participation.

Measures

Diagnostic Interview for Anxiety, Mood, and Obsessive-Compulsive and Related Neuropsychiatric Disorders (DIAMOND) - Social Anxiety Disorder Module. The DIAMOND (Tolin et al., 2013) is a semi-structured clinical interview that queries the DSM-5 diagnostic criteria for anxiety, mood, and obsessive-compulsive and related disorders and is supplemented with clinically relevant follow-up questions. The DIAMOND is divided into modules pertaining to diagnoses, with each module containing diagnostic criteria for the interviewer to circle "Yes" if they believe that criterion to be met or "No" if they do not believe the criterion to be met. The diagnosis is considered present if all criteria are rated "Yes" by the interviewer. Each module contains a severity rating of that disorder that the interviewer will rate on a scale of 1 (normal) to 7 (extreme) based on their judgment. The social anxiety disorder (SAD) module of the DIAMOND contains eight diagnostic criteria and ten essential questions that each have their own follow up questions. For this study, each interview was audio recorded and rated by a different interviewer to establish reliability among the SAD severity rankings. Tolin and colleagues (2016) found the SAD module to have very good interrater reliability ($\kappa = .70$) and excellent test-retest reliability ($\kappa = .86$). See Appendix A.

Social Phobia Inventory (SPIN). The Social Phobia Inventory (SPIN; Connor et al., 2000) is a 17-item self-report questionnaire that measures severity of social anxiety

disorder. Using a 5-point Likert scale (0 *not at all*, 4 *extremely*), individuals rate how much they agree with items such as "fear of people in authority" and "avoids speeches". SPIN scores are determined by adding the scores for each item into a total score; total scores of 19 and higher are considered clinically significant (Connor et al., 2000). Connor and colleagues (2000) demonstrated that the SPIN has good test-retest reliability (r = 0.89) and excellent internal consistency (α = 0.94). The SPIN also demonstrated excellent internal consistency in the present study (α = 0.94). See Appendix B.

Brief Fear of Negative Evaluation Scale (BFNE). The Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983) is a 12-item self-report questionnaire that measures fear and distress related to negative evaluation. Using a 5-point Likert scale (1 *not at all characteristic of me*, 5 *extremely characteristic of me*), individuals rate the degree at which they believe statements such as "I am afraid that people will find fault with me" are characteristic of themselves. BFNE scores are determined by adding values from each item; scores greater than 25 are considered to be clinically significant (Carleton, Collimore, McCabe, & Antony, 2011). Leary and colleagues (1983) demonstrated that the BFNE has excellent internal consistency (α = .96) and good test-retest reliability (r = .75). The BFNE also demonstrated excellent internal consistency in the present study (α = .95). See Appendix C.

Fear of Positive Evaluation Scale (FPES). The FPES (Weeks et al., 2008) is a 10-item self-report questionnaire that measures fear of positive evaluation. Using a 10-point Likert scale (0 *not at all true*, 9 *very true*), individuals rate the degree at which they believe statements such as "I am uncomfortable exhibiting my talents to others, even if I think my talents will impress them" are characteristic of themselves. Items 5 and 10 are

not included when calculating the FPES score and are only included to reduce the response bias affiliated with the predisposition to affirmatively answer every question. FPES scores greater than 22 are considered to be clinically significant (Weeks et al., 2012). Weeks and colleagues (2008) demonstrated that the FPES scores were normally distributed, displayed 5-week test-retest reliability, and exhibited good internal consistency ($\alpha = 0.80$) among undergraduate students. The FPES also demonstrated good internal consistency in the present study ($\alpha = .79$). See Appendix D.

Background and Sociodemographic Questionnaire. Participants reported their age, sex, gender identity, sexual orientation, nationality and ethnicity, undergraduate classification and GPA, and current housing status (e.g., on-campus residence hall, Greek-affiliated house, off-campus apartment). See Appendix E.

Social Media and Communication. Participants reported whether or not they currently use seven popular forms of social media (i.e., Facebook, Instagram, Snapchat, Twitter, Pinterest, YouTube, LinkedIn). Participants were able to identify "other" social media and list any additional platforms. In addition, participants identified their most preferred method of social media. Participants reported how much time they spent engaged across all forms of social media each day on this scale: 0 – 1 hour, 1 – 4 hours, 5 – 9 hours, 10 – 14 hours. Next, forms of communication including e-mail, text messaging, FaceTime, Skype, in-person, telephone calls, and other messenger applications were assessed. Specifically, participants were asked to identify their preferred method of communicating with close friends, family, and their social network as a whole. See Appendix E. Given the qualitative nature of the data, these data were coded for greater interpretability in the current study.

Specifically, preferred methods of communication were coded based on levels of intimacy established by previous research studies. Wardecker et al., (2016) provided support for intimacy levels by ranking face-to-face interactions, phone conversations, text messaging, and email messages as most to least intimate, respectively. Video messaging applications such as FaceTime and Skype were classified along with telephone calls due to similar methods of communication and perceived intimacy (Yu, Xu, Liu, & Liu, 2014). Social media was added as the least intimate form of communication due to its increased public nature and openness to interactions with more distant companions (Morey et al., 2013).

Data Analysis

To examine the study aims, descriptive data were first examined. Next, associations between FNE and FPE and social media use were examined. Specifically, a Spearman's ρ correlation was conducted for time spent on social media with social anxiety levels. Spearman correlations were also conducted with FNE and FPE levels and both number of social media platforms and amount of time spent interacting each day. These correlations were conducted due to time being measured on an ordinal scale and the number of social media platforms being count data. Lastly, communication patterns were examined.

Results

Descriptive Statistics

On the DIAMOND, 63.9% (n = 85) of participants met full diagnostic criteria. With regard to social anxiety symptom severity, the mean SPIN score was 40.78 (SD = 16.18). Only 9.8% of participants (n = 13) fell below the clinical cutoff. Responses to the

fear of negative evaluation (BFNE) indicated moderate severity (M = 28.56; SD = 7.71), and 69.2% of participants (n = 92) reported scores indicative of clinically elevated symptoms. Further, 94.0% of participants (n = 125) reported fear of positive evaluation (FPES) in the clinical range, while the mean suggested severe symptoms in this area (M = 46.71; SD = 16.50).

See Table 1 for a full summary of social media descriptive characteristics. The number of social media platforms used by participants ranged from one to seven, with a mode of 6.00 (M = 4.82; SD = 1.29). With regard to preferred method of communicating, 45.1% (n = 60) preferred phone or video calls with family members, 43.6% (n = 58) preferred meeting in person with friends, and 58.6% (n = 78) preferred social media to communicate with their social network (see Table 3).

Examination of Study Hypotheses

To test the hypothesis that higher social anxiety levels would be associated with increased time spent interacting on social media platforms, a Spearman's ρ correlation was conducted. Contrary to prediction, results indicated a weak positive relationship (ρ = .012; p = .887).

Spearman's ρ correlations also were computed to test the hypothesis that higher fear of negative and positive evaluation would each be positively correlated with number of social media platforms used and amount of time spent interacting on social media. Results yielded no significant correlations between the FNE and time (ρ = .047; p = .588) nor with FNE and number of platforms (ρ = 0.031; p = 0.722). Similarly, no significant correlations between FPE and time (ρ = .049; p = .572) and with FPE and number of platforms (ρ = .073; p = .404) were observed.

Discussion

The present study adds to our understanding of social media and SAD through its characterization of social media use among socially anxious college students. As expected within our sample of individuals prescreened for social anxiety, participants reported high levels of FNE and FPE, with the mean scores of both above their respective clinical cutoffs. Further, this result parallels findings in clinical samples. For instance, a recent study by Menatti and colleagues (2015) examined FNE and FPE among college students with SAD and found similar mean scores: FNE (M = 30.60; SD = 6.94) and FPE (M = 23.36; SD = 13.07).

Consistent with other studies (Mander, 2015; Smith & Anderson, 2018; Villanti et al., 2017), participants reported using more than one social media platform (M = 4.82; Mode = 6.0). Although Facebook has shown to be the most popular form of social media among U.S. adults of all ages, national trends show the networking site losing popularity and interaction among younger individuals (Smith & Anderson, 2018). The Pew Research Center has illustrated social media patterns among various demographics and has found that individuals from 18- to 24-years old are significantly more likely to use and prefer sites such as Snapchat and Instagram compared to older users (Smith & Anderson, 2018). Our data supports this national trend.

However, the results did not support the hypothesis that higher levels of social anxiety would be associated with greater time spent on social media platforms. Similarly, and contrary to the hypothesis, the results did not show that individuals with higher levels of FNE would spend more time on social media or interact among more social media platforms. The results did not indicate any significant relationship between FNE or FPE

with any measurement of social media use, therefore we were unable to support the hypothesis that FNE would be a stronger predictor than FPE. One possible explanation for this finding is that time spent on social media and number of platforms used may have little variability among a sample of college students while the methods of social media engagement (i.e., active, passive) may have greater variability and dependence on FNE or FPE.

The final aim of the study was to examine patterns of communication among individuals with social anxiety. The results showed that when communicating with family members and close friends, socially anxious individuals often used more intimate forms of communication, namely, meeting in person and talking via phone. Additionally, individuals with social anxiety are likely to interact via more public and less intimate means (i.e., social media) with people that they are not likely as acquainted (i.e., their social network). This supports previous research that individuals with elevated social anxiety may use less intimate means of communication as a form of safety behavior to alleviate expected evaluation and interaction and to maintain self-independence (Wardecker et al., 2016).

The study had several limitations that warrant discussion. First, the study relied on retrospective self-report measures to determine FNE, FPE, and social media use. It is possible that participants may not accurately characterize these variables within themselves; however, a structured clinical interview was used to determine SAD severity, which strengthens the current methodology. Future studies could benefit by the implementation of a daily diary where individuals record instances of social interactions, FNE, and FPE in detail as they happen. More importantly, the assessment of social media

use was limited. Specifically, the questionnaire pertaining to time spent on social media each day consisted of four wide ranges of time that did not allow for specific insight into how much time each person reported spending on social media each day. For example, 71.4% (n = 95) of this study's participants reported using social media between one and four hours each day, but we were unable to ascertain further detail about the amount of time, which could be important in this sample. Future studies could benefit from allowing participants to estimate their time on social media approximately rather than selecting a range of time or by utilizing an application through the participants' electronic devices that would accurately measure the amount of time that social media applications are used. In addition, this study did not examine popular active interactions such as Fortnite which currently has over 250 million online players and incorporates communication differently than the typical methods that we examined in this study (Gilbert, 2019). Furthermore, future studies should specifically assess maladaptive social media use as well as examine overall problematic smartphone use in order to communicate in areas outside of social media (e.g., texting, FaceTime). The study also did not examine the differences of active and passive social media use. Active social media use has been characterized as updating posts, uploading pictures, sharing posts, and liking and commenting on others' posts while passive social media is known as scrolling through network feeds and viewing other posts but retaining anonymity by never interacting (Escobar-Viera et al., 2018). This difference in engagement is important for future studies to examine as it can give greater insight into how interacting on social media may affect FNE or FPE specifically as well as if social anxiety can be linked to a specific method of interacting on social media.

This sample pool of participants may have limited the variability observed in this study. Specifically, the aim of the larger study from which this data was drawn was to recruit socially anxious individuals. Accordingly, the current study does not include a control group of non-anxious individuals. Future studies incorporating a control group would allow further examination of social media patterns, FNE, and FPE. For instance, a between subjects study including a socially anxious and non-socially anxious group would allow for direct comparison in social media characteristics, such as number of platforms and time among those with and without social anxiety. Additionally, the inclusion of individuals without social anxiety or the absence of inclusion criteria (e.g., open to all individuals, rather than screening for SAD) may increase the variability of FNE and FPE scores. Such data would allow for further examination of correlates among FNE, FPE, and social media use among a broader spectrum of anxiety symptoms and engagement in social media. Future investigators should consider testing the current hypotheses in such samples. A final limitation is the lack of sample diversity in the current study. Specifically, having a predominantly female (78.9%) and White (77.4%) sample of undergraduate students limits the generalizability of potential results. Future studies may want to expand sociodemographic characteristics, including age and racial/ethnic background. However, the younger age range may be a particularly relevant age group to study as previous research has shown high rates of social media usage among 18- to 29-year-olds (Smith & Anderson, 2018; Villanti et al., 2017). While few definitive differences in race and gender have been discovered regarding social media use, women have been found more likely to exhibit addictive behaviors toward social media use (Alhabash & Ma, 2017; Andreassen et al.,2016; Vannucci et al., 2018). Thus,

the addition of more men in the sample of future studies would aide in generalizing the study conclusions among all individuals.

Nevertheless, this study highlights multiple areas for further investigation. Notably, this study demonstrated the high rates of social media use, as well as communications patterns for individuals with high social anxiety symptoms. We can use this data to understand communication among individuals with SAD and different social categories, which can aide in establishing social support and relationships that are often difficult to obtain and maintain for these individuals (Erwin et al., 2004). In addition, this data may be beneficial for establishing treatment programs aimed at increasing intimate communication among socially anxious individuals. Previous research has shown that utilizing online communication (e.g., social media, text messaging, email) as a supplement to existing relationships can reduce fears of evaluation and anxiety as well as increase the quality and closeness of the relationship (Hoge, Bickham, & Cantor, 2017; Messina & Iwasaka, 2011). Enhancing our knowledge of the connection between SAD and its fundamental components including FNE and FPE with social media use would allow further exploration of how to integrate social media use in evidence-based treatment programs and online support groups.

In conclusion, SAD is a commonly observed anxiety disorder affecting approximately 15 million individuals in the United States (Kessler et al., 2012). Additionally, social media has become a prominent method of communication, particularly among college students, and has even become problematic (e.g., smart phone addiction). It is vital for us to learn more about this intersection between SAD and social

media use as such work can aide in enhancing our understanding of SAD and further improving the efficacy and access to treatment for individuals with SAD.

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Table 1
Social Media Characteristics (N = 133)

Social Media Platforms	% (n)	*Preferred Platform*
Snapchat	94.7 (126)	39.0 (52)
Instagram	92.5 (123)	27.8 (37)
Facebook	78.9 (105)	11.2 (15)
Twitter	74.4 (99)	15.0 (20)
YouTube	74.4 (99)	6.7 (9)
Pinterest	55.6 (74)	0.7 (1)
LinkedIn	9.0 (12)	0.0 (0)
Other	5.3 (7)	3.0 (4)
Number of Social Media Platforms		
1	1.5 (2)	
2	4.5 (6)	
3	8.3 (11)	
4	21.8 (29)	
5	27.8 (37)	
6	31.6 (42)	
7	4.5 (6)	
Time spent each day		
0 – 1 hour	6.8 (9)	
1 – 4 hours	71.4 (95)	
5 – 9 hours	18.8 (25)	
10 – 14 hours	3.0 (4)	

Table 2.
Means, Standard Deviations, and Spearman (ρ) Correlations

	M (SD)	# of Social Media Platforms		Time	
		ρ	*p*	ρ	*p*
Social anxiety	40.78 (16.18)	.060	.491	.012	.887
Fear of Negative Evaluation	43.68 (11.15)	.031	.722	.047	.588
Fear of Positive Evaluation	46.71 (16.50)	.073	.404	.049	.572

Note. # of Social Media Platforms = Number of platforms used regularly; Time = Time spent on social media each day; Social anxiety = SPIN total; Fear of Negative Evaluation = BFNE total score; Fear of Positive Evaluation = FPES total score.

Table 3
Preferred Methods of Communication for Family, Friends, and Social Network (N = 133)

Communication Method	Family	Friends	Social Network
	% (*n*)	% (*n*)	% (*n*)
Social Media	0.8 (1)	3.8 (5)	58.6 (78)
Email	0.0 (0)	0.0 (0)	8.3 (11)
Text Messaging	21.1 (28)	36.1 (48)	26.3 (35)
Phone / Video Calls	45.1 (60)	16.5 (22)	2.3 (3)
In-Person	33.1 (44)	43.6 (58)	4.5 (6)

Note. Methods of communication are listed in order of rising intimacy levels from social media (least intimate) to in-person (most intimate; Wardecker et al., 2016).

Appendix A

DIAMOND SOCIAL ANXIETY DISORDER MODULE – Interview

SOCIAL ANXIETY DISORDER (SOCIAL PHOBIA)

☆ **In the past month, do you feel very afraid or anxious in any social situations, because you are worried that others will judge you negatively, or that you will embarrass yourself?**

☆ **In the past month, do you feel very afraid or anxious in situations where other people might observe you?**

⇨ Can you describe that fear or anxiety?

_____

⇨ What kind of situations are you afraid of?

□ Public speaking
□ Starting or maintaining conversations
□ Meeting people you don't know well
□ Talking to authority figures
□ Asserting one's self
□ Being watched while working or performing
□ Eating, writing, or performing other activities in public
□ Using public restrooms

□ Other _____

☆ **When you encounter (social situation), or when you anticipate encountering (social situation), what are you afraid will happen?**

⇨ Are you afraid that you will act in a way that is humiliating or embarrassing?
⇨ Are you afraid that others will see that you're anxious and judge you negatively?
⇨ Are you afraid that you will act in a way that is offensive to others?
⇨ Are you afraid that you will act in a way that causes others to reject you?

1. Does the person report marked fear or anxiety about one or more social situations in which the person is exposed to possible scrutiny or judgment from others?	*Yes*	*No* *Skip to item 9* and circle "No"

☆ **In the past month, do you make significant efforts to avoid encountering (social situation)?**

⇨ In what ways do you avoid it?

_____

☆ **In the past month, if you can't avoid (social situation), do you feel intensely anxious?**

□ Social Situation is actively avoided
□ Social Situation is endured with intense anxiety

2. Are the social situations avoided or endured with intense anxiety?	*Yes*	*No* *Skip to item 9* and circle "No"

☆ **In the past month, does it bother you significantly that you have this fear or avoidance?**

How frequently do you feel significantly distressed?	□ Not at all	□ Fairly infrequently	□ Very frequently	□ constantly without relief
How long does the distress last when you experience it?	□ no distress	□brief duration	□ very long-lasting	□ constantly without relief
How intense is the distress when you experience it?	□ no distress	□ slight distress	□ substantial distress	□ Extremely intense or unbearable

☆ **In the past month, does this fear or avoidance impair your ability to function, like at school or work, in your social life, in your family, or in your ability to do things that are important to you? How?**

⇨ Do you avoid any activities or situations because of these problems?

⇨ Do these problems interfere with your ability to focus on necessary tasks?

□ problems at school	□problems with work or role functioning	□ problems with social life
□ problems with family	□ problems with home responsibilities	□ problems with leisure activities
□ legal problems	□ Financial problems	□ problems of health or safety
□ Other functional impairment		

3. Does the fear or avoidance cause significant distress, or cause impairment in important areas of functioning	*Yes*	*No* *Skip to item 9* and circle "No"

☆ **Do you think your level of fear and avoidance is excessive or unreasonable in some way**?

⇨ Would someone else think that this fear and avoidance are excessive or unreasonable?

(Note: This item is based on the clinician's opinion, not solely on the patient's self-report. Consider all available information about the actual degree of threat associated with the social situation.)

4. Is the fear of anxiety out of proportion to the actual threat posed by the social situation and sociocultural context?	*Yes*	*No* *Skip to item 9* and circle "No"

☆ **In the past month, do you almost always feel scared when you encounter (object or situation)?**

⇨ Are there times when you can encounter (object or situation) and not feel scared?

5. Do the social situations almost always provoke fear or anxiety?	*Yes*	*No* *Skip to item 9* and circle "No"

☆ **How long have you been experiencing this fear and avoidance?_____**

(Note: typically, though not always, "persistent" is defined as 6 months or more.)

6. Is the fear or avoidance persistent?	*Yes*	*No* *Skip to item 9* and circle "No"

7. Is the fear and avoidance attributable to another mental disorder?	*No*	*Yes* *Skip to item 9* and circle "No"

8. If another medical condition is present, is the fear or avoidance clearly unrelated or excessive?	*No*	*Yes* *Skip to item 9* and circle "No"

9. Social Anxiety Disorder

Current severity of social anxiety disorder	1	2	3	4	5	6	7
	Normal	Borderline	Mild	Moderate	Marked	Severe	Extreme

Appendix B

SPIN

name _____

date _____

b ck the box that best describes how you have been feeling during the last week or other agreed time period:

		0: not at all	***1: a little bit***	***2: some -what***	***3: very much***	***4: extre -mely***
1	I am afraid of people in authority					
2	I am bothered by blushing in front of people					
3	parties and social events scare me					
4	I avoid talking to people I don't know					
5	being criticized scares me a lot					
6	I avoid doing things or speaking to people for fear of embarrassment					
7	sweating in front of people causes me distress					
8	I avoid going to parties					
9	I avoid activities in which I am the centre of attention					
10	talking to strangers scares me					
11	I avoid having to give speeches					
12	I would do anything to avoid being criticized					
13	heart palpitations bother me when I am around people					
14	I am afraid of doing things when people might be watching					
15	being embarrassed or looking stupid are among my worse fears					
16	I avoid speaking to anyone in authority					
17	trembling or shaking in front of others is distressing to me					

Appendix C

Brief Fear of Negative Evaluation-II

(Carleton, Collimore, & Asmundson, 2007)

Please circle the number that best corresponds to how much you agree with each item.

	Not at all characteristic of me	A little characteristic of me	Somewhat characteristic of me	Very characteristic of me	Entirely characteristic of me
1. I worry about what other people will think of me even when I know it doesn't make any difference.	1	2	3	4	5
2. It bothers me when people form an unfavourable impression of me.	1	2	3	4	5
3. I am frequently afraid of other people noticing my shortcomings.	1	2	3	4	5
4. I worry about what kind of impression I make on people.	1	2	3	4	5
5. I am afraid that others will not approve of me.	1	2	3	4	5
6. I am afraid that other people will find fault with me.	1	2	3	4	5
7. I am concerned about other people's opinions of me.	1	2	3	4	5
8. When I am talking to someone, I worry about what they may be thinking about me.	1	2	3	4	5
9. I am usually worried about what kind of impression I make.	1	2	3	4	5
10. If I know someone is judging me, it tends to bother me.	1	2	3	4	5
11. Sometimes I think I am too concerned with what other people think of me.	1	2	3	4	5
12. I often worry that I will say or do wrong things.	1	2	3	4	5

Score:_____

Appendix D

Fear of Positive Evaluation Scale

Read each of the following statements carefully and select the number to indicate the degree to which you feel the statement is characteristic of you, using the following scale. For each statement, *respond as though it involves people that you do not know very well.* Rate each situation from 0 to 9.

0	1	2	3	4	5	6	7	8	9
Not at all true				Somewhat true					Very True

1.		I am uncomfortable exhibiting my talents to others, even if I think my talents will impress them.
2.		It would make me anxious to receive a compliment from someone that I am attracted to.
3.		I try to choose clothes that will give people little impression of what I am like.
4.		I feel uneasy when I receive Praise from authority figures.
5.		If I have something to say that I think a group will find interesting, I typically say it.
6.		I would rather receive a compliment from someone when that person and I were alone than when in the presence of others.
7.		If I was doing something well in front of others, I would wonder whether I was doing “too well.”
8.		I generally feel uncomfortable when people give me compliments.
9.		I don’t like to be noticed when I am in public places, even if I feel as though I am being admired.
10.		I often feel under-appreciated, and wish people would comment more on my positive qualities.

Appendix E

Background and Sociodemographic Information

What was your sex at birth?
0 = Male
1 = Female
2 = Other (Please Specify): _____

Which of the following best describes your gender identity?
1 = Female/Woman
2 = Male/Man
3 = Transgender
4 = Other Genders (Please specify): _____

What is your date of birth? _____

What is your age (in years)? _____

Is English a second language for you?
0 = No
1 = Yes

Were you born in the United States?
0 = No
1 = Yes

If NO:
How long have you been living here? _____
Where were you born? _____

What is your ethnic background?
1 = White
2 = Native American / American Indian
3 = Black / African-American
4 = Chinese or Chinese-American
5 = Japanese or Japanese-American
6 = Korean or Korean-American
7 = Other Asian or Asian-American
8 = Mexican, Mexican American, or Chicano
9 = Puerto Rican
10 = Other Hispanic / Latino
11 = East Indian
12 = Middle Eastern / Arab
13 = Other (Please specify): _____

How do you self-identify?
1 = Gay
2 = Lesbian
3 = Bisexual
4 = Queer
5 = Questioning
6 = Heterosexual / Straight
7 = Asexual
8 = Other (Please specify): _____

Year in school
a) Freshman (1st year)
b) Sophomore (2nd year)
c) Junior (3rd year)
d) Senior (4th year)
e) Other: _____

Current GPA: _____

Number of credit hours enrolled in this semester: _____

Major: _____

Housing Status
a) On-campus dorm
b) Greek-affiliated house
c) Alone in off-campus apartment or house
d) With roommate in off-campus apartment or house
e) With parent(s) or family member
f) Other: _____

What forms of social media do you use? Check all that apply.

- □ Facebook
- □ Instagram
- □ Snapchat
- □ Twitter
- □ Pinterest
- □ YouTube
- □ LinkedIn
- □ Other _____

What is your most preferred method of social media? _____

Thinking of an average day, how much time do you spend engaged in these forms of social media?

- □ 0 – 1 hour
- □ 1 – 4 hours
- □ 5 – 9 hours
- □ 10 – 14 hours
- □ 15 – 20 hours

What forms of communication do you use? Check all that apply.

- □ E-mail
- □ Text messaging
- □ Twitter
- □ Facebook messenger
- □ G-chat messager / Hangouts
- □ Facetime
- □ Skype
- □ In-person
- □ Telephone calls
- □ Other chat or messenger apps
- □ Other _____

Thinking of an average day, how much time do you spend communicating with others using these forms of communication?

- □ 0 – 1 hour
- □ 1 – 4 hours
- □ 5 – 9 hours
- □ 10 – 14 hours
- □ 15 – 20 hours

What is your preferred method of communicating with close friends?

_____

What is your preferred method of communicating with your social network?

_____

What is your preferred method of communicating with your family?

_____